



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,261	08/12/2002	Franz Durst	HMN 2 0020	1706

7590 12/01/2005
Fay Sharpe Fagan
Minnich & McKee
7th Floor
1100 Superior Avenue
Cleveland, OH 44114-2518

EXAMINER

NECKEL, ALEXA DOROSHENK

ART UNIT PAPER NUMBER

1764

DATE MAILED: 12/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/069,261	Applicant(s) DURST ET AL.	
	Examiner Alexa D. Neckel	Art Unit 1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1,2 and 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 August 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2-22-02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Claims 1, 2 and 17-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on September 16, 2005.

Specification

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (f) BACKGROUND OF THE INVENTION.
 - (1) Field of the Invention.
 - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).

Art Unit: 1764

- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
- (l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

It is suggested that applicant insert the appropriate headings into the specification.

2. The disclosure is objected to because of the following informalities:

Page 22, line 23 a space is needed in "elements10"; and

Page 23, line 14 "isolation 9" should be "insulation 9".

Appropriate correction is required.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the porous material with interconnected hollow spaces whose porosity changes over to larger pores in the direction toward the development of flame (claim 11) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "1" has been used to designate both the pore burner and something else about zone A in figure 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to because in Figure 3, element 3 should be 3" according to page 24, line 18. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being

Art Unit: 1764

amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 3'", Zone 5, 6', 6" and 6''' all found on page 25, lines 5 and 11-12. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required

Art Unit: 1764

corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 4, 6, 8 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites the limitation "the combustion product" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 6 lacks antecedent support in the disclosure to provide one with the "design" recited to achieve the claimed velocities. For examination purposes, the previously recited structural elements and relationships are treated as continuing to read on the "design".

Claim 8 recites the limitations "the lateral surfaces" in line 1 of the claim, "the side wall" in line 3 of the claim, "the free energy" in lines 4-5 of the claim. There is insufficient antecedent basis for these limitations in the claim.

The term "in proportion to the volume of the pre-mix chamber" in claim 8 is a relative term which renders the claim indefinite. The term is not clearly defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim 16 lacks antecedent support in the disclosure to provide one with the "design" recited to achieve the claimed flame stability. For examination purposes, the previously recited structural elements and relationships are treated as continuing to read on the "design".

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claims 3, 5-9 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Martin et al. (5,165,884).

With respect to claim 3, Martin et al. discloses a device comprising:

a combustion chamber (within shell 17) with a supply line (32) to the chamber and an additional supply line (31).

It is noted that the manner of operating the device does not differentiate the apparatus claims from the prior art. MPEP 2114. Additionally, the material or article worked upon also does not limit the apparatus claims. MPEP 2115.

With respect to claim 5, figures 1 and 2 illustrate a pre-mixing of the flue and oxidant before combustion.

With respect to claim 6, the velocity in the pre-mix area would inherently be greater than in the combustion chamber since the combustion chamber comprises ceramic saddles, balls and membranes which would slow velocity.

Art Unit: 1764

With respect to claims 7 and 9, no further structural limitations are recited therefore continues to read on the device of Martin et al. It is noted that the manner of operating the device does not differentiate the apparatus claims from the prior art. MPEP 2114. Additionally, the material or article worked upon also does not limit the apparatus claims. MPEP 2115.

With respect to claim 8, the surfaces of the device reasonably appear to be of such a size and proportion so as to achieve safe use of the device.

With respect to claim 16, the chamber reasonably appears to be designed so that flame stability is achieved over or under pressure since all of the previously recited structural limitations have been met.

11. Claims 3 and 10-13 are rejected under 35 U.S.C. 102(b) as being anticipated by Durst et al. (5,522,723).

With respect to claim 3, Durst et al. discloses a device comprising:

a combustion chamber (within housing 1) with a supply line (6) to the chamber and an additional supply line (2).

It is noted that the manner of operating the device does not differentiate the apparatus claims from the prior art. MPEP 2114. Additionally, the material or article worked upon also does not limit the apparatus claims. MPEP 2115.

With respect to claim 10, Durst et al. further discloses wherein the combustion chamber has a porous material with inter-connected hollow spaces (col. 4, lines 23-30) suitable in size for flame development (col. 3, lines 6-8).

Art Unit: 1764

With respect to claims 11 and 12, the porous material porosity changes over to larger pores in the direction toward the flame (see figure 1) with a critical Péclet number (zone B) at an inner border area (col. 2, lines 21-30) and pore sizes different than that of zones A and C.

With respect to claim 13, Durst et al. further discloses wherein the porous material can be spheres (col. 4, lines 53-55).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Durst et al. (5,522,723), as applied to claim 13 above, and further in view of Martin et al. (5,165,884).

With respect to claim 14, Durst et al. discloses all of the structure as discussed above, but fails to disclose a grid provided between the areas of differing porosity.

Martin et al. discloses a similar combustion device and teaches wherein gas permeable barriers can be utilized to maintain the integrity of the matrix of porous bodies so that adjacent layers of materials of differing sizes do not become mixed (col. 10, lines 26-34). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the gas permeable barriers of Martin et al. in the

Art Unit: 1764

apparatus of Durst et al. in order to control the location of the various sized materials in their respective zones.

With respect to claim 15, no further structural limitations are recited therefore continues to read on the device of Durst et al. It is noted that the manner of operating the device does not differentiate the apparatus claims from the prior art. MPEP 2114. Additionally, the material or article worked upon also does not limit the apparatus claims. MPEP 2115.

Even so, Durst et al. does disclose wherein the entire apparatus is cooled by exterior (8) and interior (9) cooling devices.

14. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Martin et al. (5,165,884) as applied to claim 3 above, and further in view of Noakes et al. (5,110,563).

With respect to claim 4, Martin et al. discloses all of the structure as described above, including pre-heating the supply feed (see figures 1 and 2), but fails to disclose wherein combustion product is supplied via a supply line to the combustion chamber.

Noakes et al. discloses a combustion device and teaches wherein recycling part of the hot product gas to the combustion zone pre-heats the feed and renders combustion easier (col. 2, lines 16-19). It would have been obvious to one of ordinary skill in the art at the time the invention was made to re-use the hot product gas of Martin et al. in the manner taught by Noakes et al. in order to further pre-heat the feed as required by Martin et al. in addition to making use of a product generated by operation of the device.

Art Unit: 1764

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa D. Neckel whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa D. Neckel
Examiner
Art Unit 1764

November 28, 2005


ALEXA DOROSHENK NECKEL
PRIMARY EXAMINER